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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/426,644	10/25/1999	JAE-HO MOON	1349.1022/MD	2168
21171	7590	08/11/2004	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			TUGBANG, ANTHONY D	
			ART UNIT	PAPER NUMBER
			3729	

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/426,644

**Applicant(s)**

MOON ET AL.

**Examiner**

A. Dexter Tugbang

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,13-17,19,21,23,24,27,30,38 and 42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 13-17,19,21,23,24,27,30,40 and 42 is/are allowed.
- 6) ☒ Claim(s) 1,2,38,17,40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Response to Amendment***

1. The applicant(s) amendment filed on 5/10/04 has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. The rejections below are maintained and hereby repeated for the applicant(s) convenience.

***Claim Rejections - 35 USC § 102***

4. Claims 1, 2, 38, 17 and 40 are rejected under 35 U.S.C. 102(a) as being anticipated by the Applicants' Admitted Prior Art, referred to hereinafter as the AAPA.

The AAPA (specification, pages 1-3, and Prior Art Figures 1 and 2) discloses a method of manufacturing fluid jetting apparatuses comprising forming a nozzle part 30 by a spinning process; adhering a membrane 20 to the formed nozzle part and a heat driving part 10 including fluid chambers 16 so as to position the membrane between the heat driving part and the nozzle part to separate the fluid chambers from nozzles 34 of the nozzle part; forming electrodes 13 and heating elements 14 on a first substrate wafer 11; forming driving fluid barriers 15 on the electrodes and the heating elements; forming the fluid chambers 16 in the driving fluid barriers 15; and splitting the fluid jetting apparatus in the form of the wafer into separate fluid jetting apparatuses (see Fig. 2).

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With respect to the claimed “spinning process” as recited in each of claims 1 and 17, this is broadly read as being equivalent to the conventional roll method described in the Background of the Specification (pages 1-3), since the terms of “spinning” and “rolling” are interchangeable.

Regarding Claim(s) 17, the AAPA further teaches forming a nozzle part on a silicon wafer by a spinning process (lines 24-25 of page 2 in the specification).

It is noted that the step of removing the silicon wafer from the nozzle part is inherently taught by the AAPA since the final structure of the fluid jetting apparatus (shown in Fig. 1) contains no silicon wafer.

### ***Claim Rejections - 35 USC § 103***

5. Claims 17 and 40, alternatively, are rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA in view of Japanese Patent Publication JP 10-181029, referred to hereinafter as JP’029.

With respect to the AAPA, if applicants’ do not believe that the silicon wafer is inherently removed from the nozzle part, then JP’029 shows forming multiple nozzle parts 21 (in Fig. 9) on a silicon wafer 100 in which the nozzle parts are removed from the silicon wafer to the extent of the final structure (shown in Figs. 4, 5 and 7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of the AAPA by removing the silicon wafer from the nozzle part, as taught by JP’029, to positively form a plurality of nozzle parts having a high manufacturing yield (see Abstract).

***Response to Arguments***

6. Applicant's arguments with respect to claims 1, 2, 38, 17 and 40 have been fully considered, but have not been deemed to be found as persuasive.

In regards to the merits of the AAPA, the applicant(s) assert that the AAPA does not teach “adhering...jetting apparatuses” (lines 4-8 of Claim 1 with similar limitations in Claim 17). While the examiner previously applied and subsequently withdrew a rejection on the merits of the AAPA in previous Office Actions, the examiner is of the opinion that the AAPA still clearly meets all of the limitations of at least Claims 1 and 17 for the following reasons. The paragraph in the specification (bridging the bottom of page 2 to the top of page 3) discloses that the completed apparatus (shown in Fig. 1), inclusive of the nozzle part 30, heat driving part 10, fluid chambers 16, electrodes 13, nozzles 34, heating elements 14, a first substrate wafer 11, and driving fluid barriers 15, is sectioned, i.e. split, to form multiple fluid jetting apparatus. So the structure of Figure 1 along with the manufacturing process of Figure 2, fully satisfy the limitations of “adhering...jetting apparatuses” (lines 4-8 of Claim 1 with similar limitations in Claim 17).

In regards to the merits of JP'029, the applicant(s) assert that JP'029 does not teach “removing the silicon wafer from the nozzle part” (line 5 of Claim 17). The examiner most respectfully disagrees because Figure 9 of JP'029 clearly shows the silicon wafer 100 with the nozzle parts. Then, Figures 4, 5 and 7 shows the nozzle parts without the silicon wafer 100 such that the silicon wafer is not part of the final structure. Therefore, the silicon wafer 100 is removed from the nozzle part in JP'029 being that the wafer 100 is not part of the completed or finished structure. Furthermore, the examiner notes that the entire circular silicon wafer 100

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(shown in Figure 9) is also not part of the finished structure. So from another standpoint, the nozzle parts are removed, i.e. cut, from the entire circular structure of the silicon wafer 100 to form completed and finished fluid jetting apparatuses. Thus, the examiner maintains that the AAPA would still be obvious in light of the teachings of JP'029 to one of ordinary skill in the art.

***Allowable Subject Matter***

7. Claims 13-16, 19, 21, 23, 24, 27, 30 and 42 are allowed.

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

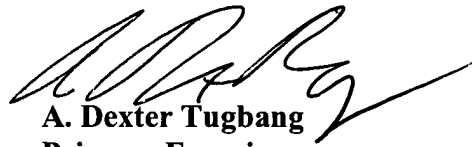
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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 703-308-7599.

The examiner can normally be reached on Monday - Friday 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**A. Dexter Tugbang**  
**Primary Examiner**  
**Art Unit 3729**

August 6, 2004